R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Independent claims 10, 12, and 21 have been amended to clarify the features of the laser microscope of the present invention whereby the light irradiated on the sample includes lines of different emission wavelengths and the spectral resolution section resolves the laser light into the lines of different emission wavelengths, and whereby the light receiving element array simultaneously receives the lines of different emission wavelengths and the controller controls respective intensities of the lines of different emission wavelengths included in the laser light to be constant.

In addition, claims 17-19 and 25-27 have been amended to better accord with amended independent claims 12 and 21 from which they respectively depend.

No new matter has been added, and it is respectfully submitted that the amendments to the claims are clarifying in nature and that no new issues have been raised which require further consideration on the merits and/or a new search.

Accordingly, it is respectfully requested that the amendments approved and entered under 37 CFR 1.116.

THE PRIOR ART REJECTION

Claims 10-27 were rejected under 35 USC 103 as being obvious in view of the combination of USP 6,167,173 ("Schoeppe et al") and USP 5,287,367 ("Yanagawa"). This rejection, however, is respectfully traversed with respect to the claims as amended hereinabove.

In the case of performing a functional search of a cell or tissue, for example, there is a strong need to simultaneously detect more than one type of fluorescent light from the sample and to carry out functional analysis of the cell or tissue in order to increase the functional search. This is the case, for example, where GFP and RFP, which are fluorescent proteins of different wavelengths, are genetically expressed in a cell and observed over time. In this example, the laser light with which the sample is irradiated must be of wavelengths most suitable for the fluorescent proteins GFP and RFP. In addition, it is necessary to stabilize the laser light intensities of both of the two wavelengths.

With the laser microscope of the present invention as recited in the clarified amended claims, the sample is irradiated with laser light including lines of different emission wavelengths (i.e. laser light including plural spectral lines), and then fluorescent light of different wavelengths emitted from the sample is detected. In particular, according to the present

invention as recited in the clarified amended claims, the lines of different emission wavelength are simultaneously received by the light receiving element array, and respective intensities of the lines of different emission wavelength are controlled to be constant.

Schoeppe et al discloses a scanning laser microscope having a power monitoring capability of stabilizing the intensity of laser light with which a specimen is irradiated. In Schoeppe et al, the irradiated laser light includes laser light of different wavelengths. The wavelength of the laser light that is to be monitored is selected by switching line filters of a filter unit 21 with a filter wheel.

It is respectfully pointed out, however, that the detector for monitoring disclosed in Schoeppe et al is merely a monitor diode 19, and not a light receiving element array. That is, the detector in Schoeppe et al merely comprises one monitor diode. Therefore, in Schoeppe et al, the laser light of each wavelength is monitored at a different time.

Hence, with the laser microscope of Schoeppe et al, it is impossible to simultaneously detect laser light of plural wavelengths with the monitor diode 19 through the filter unit 21.

It is respectfully pointed out, moreover, that in Schoeppe et al, the switching of line filters of the filter unit 21 with the filter wheel usually takes 500 msec (or 100 msec at the

fastest). Usually, the scanning time of a scanning laser microscope is several microseconds per pixel, and the scanning time per scanning line is several milliseconds. Hence, in the laser microscope of Schoeppe et al, it takes too long to switch monitoring wavelength line by line or pixel by pixel with the filter wheel during the process of obtaining one image.

For this reason, it is respectfully submitted that the laser microscope of Schoeppe et al does not contemplate switching lines filters of the filter unit 21 and detecting and controlling the intensity of the laser light of each wavelength all during the time of one scanning by the microscope. And it is respectfully submitted that the laser microscope disclosed in Schoeppe et al can observe only laser light of one wavelength at a time.

At the top of page 3 of the Final Office Action, the Examiner asserts that column 4, lines 1-19 of Schoeppe et al discloses detection and control of laser light intensities to be constant. It is respectfully pointed out, however, that the technical idea described at column 4, lines 1-19 of Schoeppe et al is to take one out of several laser wavelengths and to control the intensity thereof, as can be understood from the description "to monitor in an isolated manner the output in a determined laser line" at lines 6 and 7 of column 4 of Schoeppe et al.

In this connection, it is respectfully submitted that the technical idea disclosed in Schoeppe et al conflicts with the

technical idea of the claimed present invention, in which the respective intensities of lines of different wavelengths (i.e., spectral lines) are <u>simultaneously detected and controlled to be constant</u>.

With respect to Yanagawa, moreover, it is noted that this reference discloses an apparatus for controlling a semiconductor laser used for compact disks (CD) and laser disks (LD). In particular, Yanagawa discloses detection of a shift in wavelength of output laser light and stabilization of the output wavelength. It is respectfully pointed out, however, that in Yanagawa, the use of only one line of laser light (only one wavelength) is a precondition, and that the subject matter of the invention of Yanagawa is to detect shifts from that wavelength.

On page 4 of the Final Office Action, the Examiner asserts that Yanagawa teaches that "each emission wavelength is respectively received by one of said light receiving elements (fig. 4-9)." It is respectfully submitted, however, that Yanagawa does not disclose, teach or suggest that a plurality of emission wavelengths are simultaneously detected. This is because (as pointed out hereinabove) the laser light of Yanagawa comprises only one line.

For example, in the embodiment shown in Fig. 6 of Yanagawa, laser light is diffracted by a diffraction grating 431

and is received by a line sensor 431 b. Here, the diffraction grating 431 does not spectrally resolve the laser light but rather performs the function of deflecting the laser light to a different direction according to a shift in wavelength.

Since laser light used in Yanagawa is a single-wavelength laser light in the first place, it cannot be spectrally resolved even if it is diffracted by a diffraction grating. In Yanagawa, by finding out which pixel of the line sensor 431b produces an output, the wavelength shift condition of the laser light is detected. And the prism 432 in Fig. 8 of Yanagawa performs the same function.

It is respectfully submitted that since the diffraction grating 431 and the prism 432 disclosed in Yanagawa do not perform the function of spectral resolution, as stated above, the technical idea disclosed in Yanagawa also conflicts with the technical idea of the claimed preset invention, which is to simultaneously detect the respective intensities of two or more lines of laser light and to individually adjust the intensities to be constant.

Hence, in the apparatus disclosed in Yanagawa, the subject of measurement is single-wavelength laser light, and the control method includes performing feedback control such that the laser outputs single-wavelength laser light of a fixed wavelength. By

contrast, in the case of the laser microscope of the claimed present invention, the subject of measurement is laser light including lines of different emission wavelengths (i.e., laser light including plural spectral lines), and the control method includes simultaneously receiving the lines of different emission wavelengths and controlling respective intensities of the lines of different emission wavelengths to be constant. Thus, both the subject of measurement and the method of control of the present invention are very differ from those disclosed in Yanagawa.

In view of the foregoing, it is respectfully submitted that even if the teachings of Schoeppe et al and Yanagawa were combinable in the manner suggested by the Examiner, the above described claimed structural features and advantageous effects of the present invention as recited in the amended claims would still not be achieved or rendered obvious.

It is therefore respectfully submitted that claims 10-27, as amended, clearly patentably distinguish over Schoeppe et al and Yanagawa under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

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